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Homework 6

* 1. Response Variable = Calcium Concentration in the plasma of each bird
  2. Male and Female
  3. 5 birds given a hormone in their diet, 5 given a control diet
     1. = 1.74
     2. Alphahats
     3. Betahats
     4. This makes sense because the values closer to the window are typically higher than the grand mean.
     5. The betahat values also make sense considering the positive values mean a greater value of growth (which is water).
     6. 1.74 + (-0.58) + (-0.274) = 0.886
     7. 1.37-0.886 = 0.484
     8. 0.886 – 1.74
     9. -0.58
     10. -0.274
     11. 0.484
     12. SS(Acid) = 0.075076
     13. SS(Row) = 0.3364
     14. SS(Error) = 0.234256
     15. SS(Total) = 0.729316
         1. Test-Statistic = 4.51
         2. P-Value = 0.0487
         3. Conclusion = At alpha 0.05, there is statistically significant evidence that the population mean of height differs when dealing with acid levels
         4. Test-Statistic = 1.38
         5. P-Value = 0.3235
         6. Conclusion = At alpha 0.05, there is not statistically significant evidence that the population mean of height differs when dealing with rows.
  4. Water and 1.5M HCl, Water and 3.0M HCl, 3.0M HCl and 1.5M HCl
     1. Water and 1.5M HCl
        1. No
     2. Water and 3.0M HCl
        1. Yes
     3. 3.0M HCl and 1.5M HCl
        1. Yes
     4. Water and 1.5M HCl
        1. (-0.888, 1.652) We are 95% confident that the difference of means in Water and 1.5M HCl is between -0.888 and 1.652.
     5. Water and 3.0M HCl
        1. (-2.474, 0.066) We are 95% confident that the difference of means in Water and 3.0M HCl is between -2.474 and 0.066.
     6. 3.0M HCl and 1.5M HCl
        1. (-2.856, -0.315) We are 95% confident that the difference of means in 3.0M HCl and 1.5M HCl is between -2.856 and -0.315.
  5. 1. Response Variable = Tips
     2. Two Factors = Male or Female
     3. Levels = Draw a happy face on the back
  6. Table Below

|  |  |  |
| --- | --- | --- |
|  | Happy Face | No Happy Face |
| Male | 18% | 21% |
| Female | 33% | 28% |

* 1. Interaction Plot

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | | Female Server | | Difference due to Gender |
| Happy Face | No Happy Face |
| Male Server | Happy Face | 25.5% | 23% | 2.5% |
| No Happy Face | 27% | 24.5% | 2.5% |
| Difference due to happy face | | -1.5% | -1.5% |  |

* 1. The difference in the tips due to gender is 2.5% increase for female which means and there is a 1.5% decrease when it comes to the difference in happy faces or not. This means there is not an interaction between these points of data.